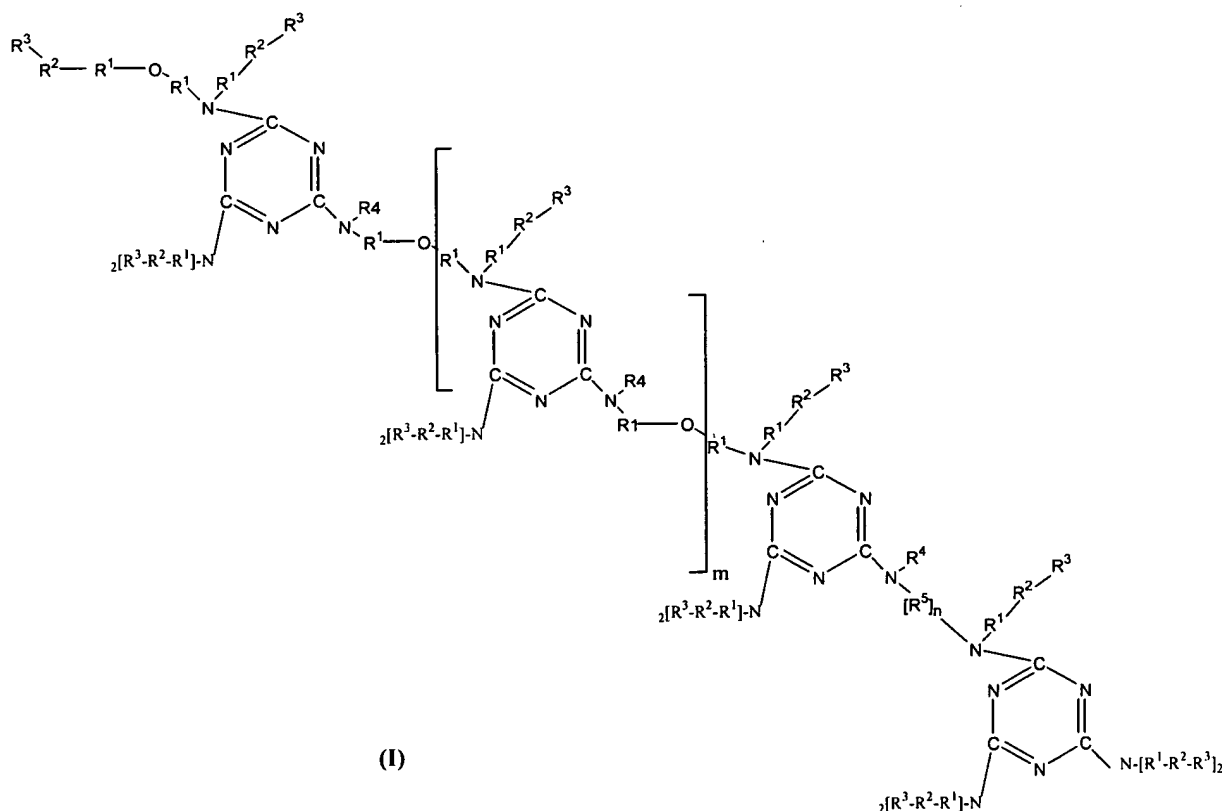


# **AMENDMENTS TO THE CLAIMS**

The following listing of claims replaces all prior versions and listings of claims in this application. Please amend the claims without prejudice to read as follows:

Claim 1. (Currently amended) A melamine ring-containing co-polymer of formula (I)



wherein m is an integer of 1 to 100;

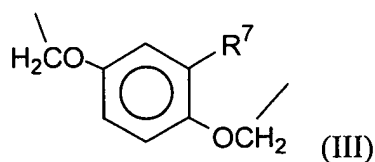
R<sup>1</sup> is independently selected from the group consisting of an alkyl group having one to twenty carbon atoms;

R<sup>2</sup> is independently selected from the group consisting of an oxygen atom and a sulfur atom;

R<sup>3</sup> is independently selected from the group consisting of an alkyl group, an allyl group, an alkynyl group, an aryl group, and a phenyl group, having one to seventy carbon atoms;

$R^4$  is independently selected from the group consisting of  $-C_pH_{2p}OH$ ;  $-C_pH_{2p-1}OH$ ;  $-C_pH_{2p-2}OH$ , wherein  $p$  is an integer of one to seven; a hydrogen atom; a carboxyl group, an alkyl group; an allyl group; and an alkynyl group;

$R^5$  is independently selected from the group consisting of an alkyl group, an alkyl group containing at least one ether linkage, and the group represented by the formula (III):



wherein  $R^7$  is independently a  $C_{10}$ - $C_{40}$  branched or unbranched, substituted or unsubstituted alkyl, allyl, or alkynyl group, and;

$n$  is an integer of one to thirty;

wherein the melamine ring-containing co-polymer is the reaction product of at least one melamine base resin and at least one reactant compound, wherein the at least one reactant compound comprises a cashew nut shell liquid and has at least one functional group selected from a carboxyl group, a hydroxyl group, a thiol group and combinations thereof.

Claim 2. (Previously presented) The co-polymer of claim 1, wherein the cashew nut shell liquid comprises cardanol and cardol.

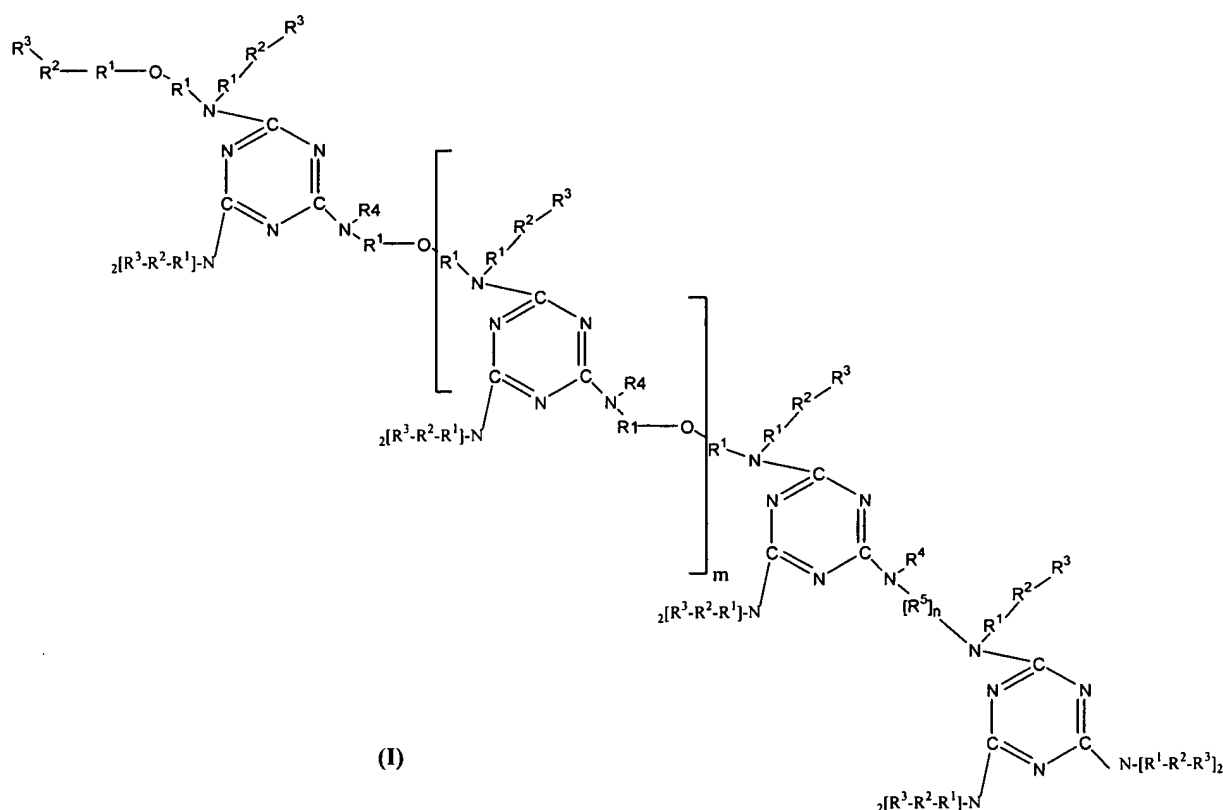
Claim 3. (Previously presented). The co-polymer of claim 1, wherein the at least one reactant compound further comprises a fatty acid.

Claim 4. (Currently amended). The co-polymer of claim 3[[1]], wherein the fatty acid is at least one reactant compound further comprises at least one compound selected from the group consisting of lauric acid, myristic acid, palmitic acid, stearic acid, arachidic acid, palmitoleic acid, oleic acid, ricinoleic acid, linoleic acid, arachidonic acid, and combinations thereof.

Claim 5. (Previously presented) The co-polymer of claim 1, wherein the at least one reactant compound further comprises at least one compound which is selected from the group consisting of dodecyl mercaptan, phenyl mercaptan, lauryl thioglycolate, octyl thioglycolate, and mixtures thereof.

Claim 6. (Currently amended) The co-polymer of claim 1, wherein the at least one base melamine base resin is modified or unmodified and is selected from the group consisting of a melamine resin, a melamine-formaldehyde resin, a melamine-urea-formaldehyde resin, a ~~urea-formaldehyde resin~~ methylated melamine formaldehyde, and combinations thereof.

Claim 7. (Currently amended) A melamine ring-containing co-polymer of formula (I):



wherein m is an integer of 1 to 100;

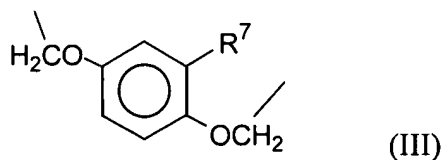
$R^1$  is independently selected from the group consisting of an alkyl group having one to twenty carbon atoms;

$R^2$  is independently selected from the group consisting of an oxygen atom and a sulfur atom;

$R^3$  is independently selected from the group consisting of an alkyl group, an allyl group, an alkynyl group, an aryl group, and a phenyl group, having one to seventy carbon atoms;

$R^4$  is independently selected from the group consisting of  $-C_pH_{2p}OH$ ;  $-C_pH_{2p-1}OH$ ;  $-C_pH_{2p-2}OH$ , wherein  $p$  is an integer of one to seven; a hydrogen atom; a carboxyl group, an alkyl group; an allyl group; and an alkynyl group;

$R^5$  is independently selected from the group consisting of an alkyl group, an alkyl group containing at least one ether linkage, and the group represented by the formula (III):



wherein  $R^7$  is independently a  $C_{10}$ - $C_{40}$  branched or unbranched, substituted or unsubstituted alkyl, allyl, or alkynyl group, and;

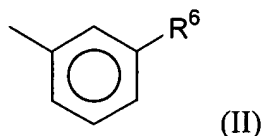
$n$  is an integer of one to thirty.

Claim 8. (Currently amended) The co-polymer of claim 7, wherein  $R^1$  is independently selected from the group consisting of an alkyl group ~~a group~~ having two to seven carbon atoms.

Claim 9. (Currently amended) The co-polymer of claim 7, wherein at least one of  $R^3$  is independently selected from the group consisting of an alkyl group, an allyl group, an alkynyl group, an aryl group, and a phenyl group ~~a group~~ having thirty to sixty carbon atoms.

Claim 10. (Currently amended) The co-polymer of claim 7, wherein at least one of  $R^3$  is independently selected from the group consisting of an alkyl group, an allyl group, an alkynyl group, an aryl group, and a phenyl group ~~a group~~ having six to twelve carbon atoms.

Claim 11. (Currently amended) The co-polymer of claim 7, wherein at least one  $R^3$  is a structure represented by the formula (II):



wherein  $R^6$  is independently selected from the group consisting of an alkyl group, an allyl group, and an alkynyl group having ten to forty carbon atoms.

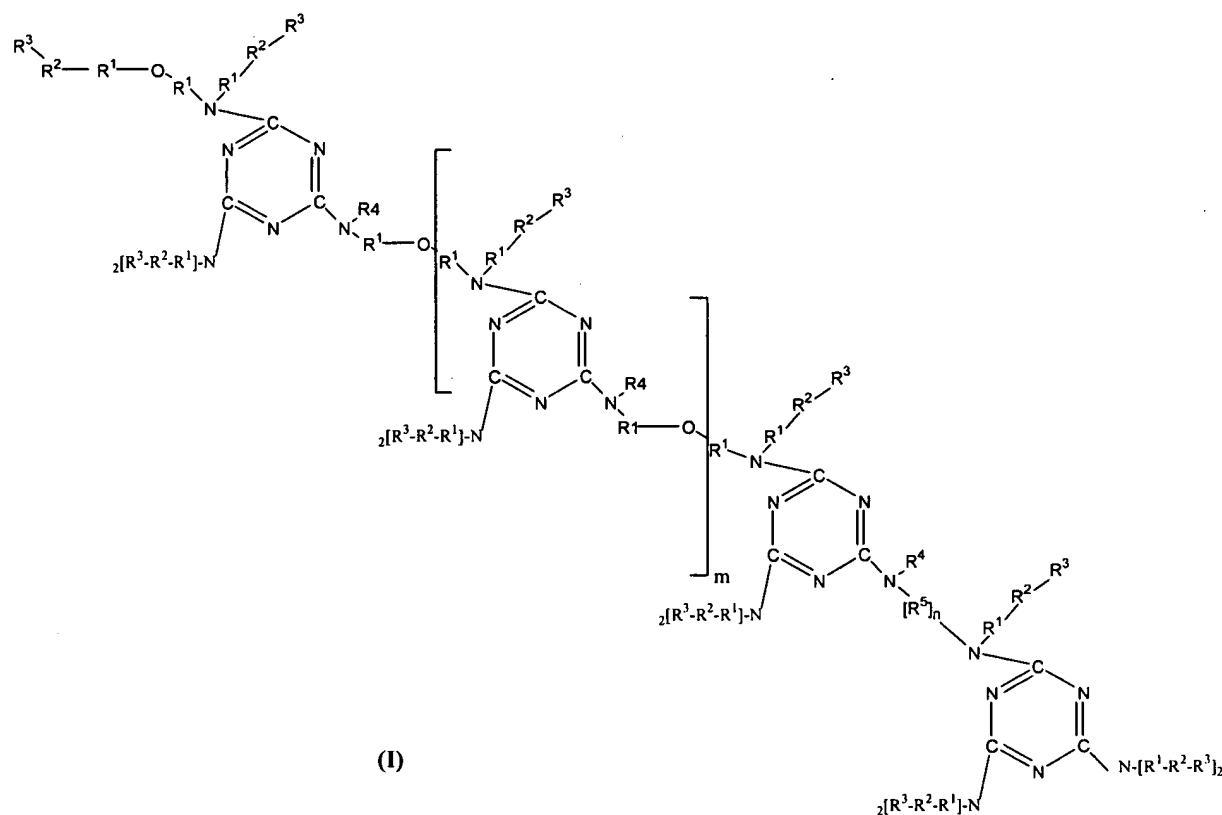
Claim 12. (Currently amended) The ~~co-polymer~~ polymer of claim 11, wherein  $R^6$  is independently selected from the group consisting of an alkyl group, an allyl group, and an alkynyl group ~~a group~~ having fifteen to thirty carbon atoms.

Claim 13. (Currently amended) The co-polymer of claim 11, wherein  $R^6$  is independently selected from the group consisting of ~~a group selected from~~  $-(CH_2)_7CH=CH-(CH_2)_5CH_3$ ;  $-(CH_2)_7CH=CHCH_2CH=CH(CH_2)_2CH_3$ ;  $-(CH_2)_7CH=CHCH_2CH=CHCH_2CH=CH_2$ ; and  $-(CH_2)_{14}CH_3$ .

Claim 14. (Currently amended) A method of preparing a melamine ring-containing co-polymer comprising:

reacting at least one melamine base resin with at least one reactant compound;

wherein the reactant compound comprises cashew nut shell liquid and has at least one functional group selected from a carboxyl group, a hydroxyl group, a thiol group and combinations thereof, wherein the copolymer has formula (I):



wherein m is an integer of 1 to 100;

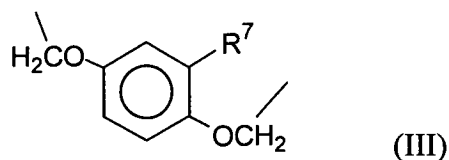
R<sup>1</sup> is independently selected from the group consisting of an alkyl group having one to twenty carbon atoms;

R<sup>2</sup> is independently selected from the group consisting of an oxygen atom and a sulfur atom;

R<sup>3</sup> is independently selected from the group consisting of an alkyl group, an allyl group, an alkynyl group, an aryl group, and a phenyl group, having one to seventy carbon atoms;

$R^4$  is independently selected from the group consisting of  $-C_pH_{2p}OH$ ;  $-C_pH_{2p-1}OH$ ;  $-C_pH_{2p-2}OH$ , wherein p is an integer of one to seven; a hydrogen atom; a carboxyl group, an alkyl group; an allyl group; and an alkynyl group;

R<sup>5</sup> is independently selected from the group consisting of an alkyl group, an alkyl group containing at least one ether linkage, and the group represented by the formula (III):



wherein R<sup>7</sup> is independently a C<sub>10</sub>-C<sub>40</sub> branched or unbranched, substituted or unsubstituted alkyl, allyl, or alkynyl group, and;

n is an integer of one to thirty.

Claim 15. (Original) The method of claim 14, wherein the reaction is carried out in the presence of a proton-donating catalyst.

Claim 16. (Original) The method of claim 15, wherein the catalyst is a sulfo radical containing catalyst.

Claim 17. (Currently amended) The method of claim 15, wherein the catalyst is selected from the group consisting of methanesulfonic acid, phosphoric acid, nitric acid, oxalic acid, maleic acid, hexamic acid, phthalic acid, acrylic acid, para-toluene sulfonic acid, dinonyl naphthalene sulfonic acid, magnesium bromide, zinc nitrate, aluminum nitrate, magnesium nitrate, and combinations thereof.

Claim 18. (Previously presented) The method of claim 14, wherein the at least one reactant compound comprises cardol and cardanol.

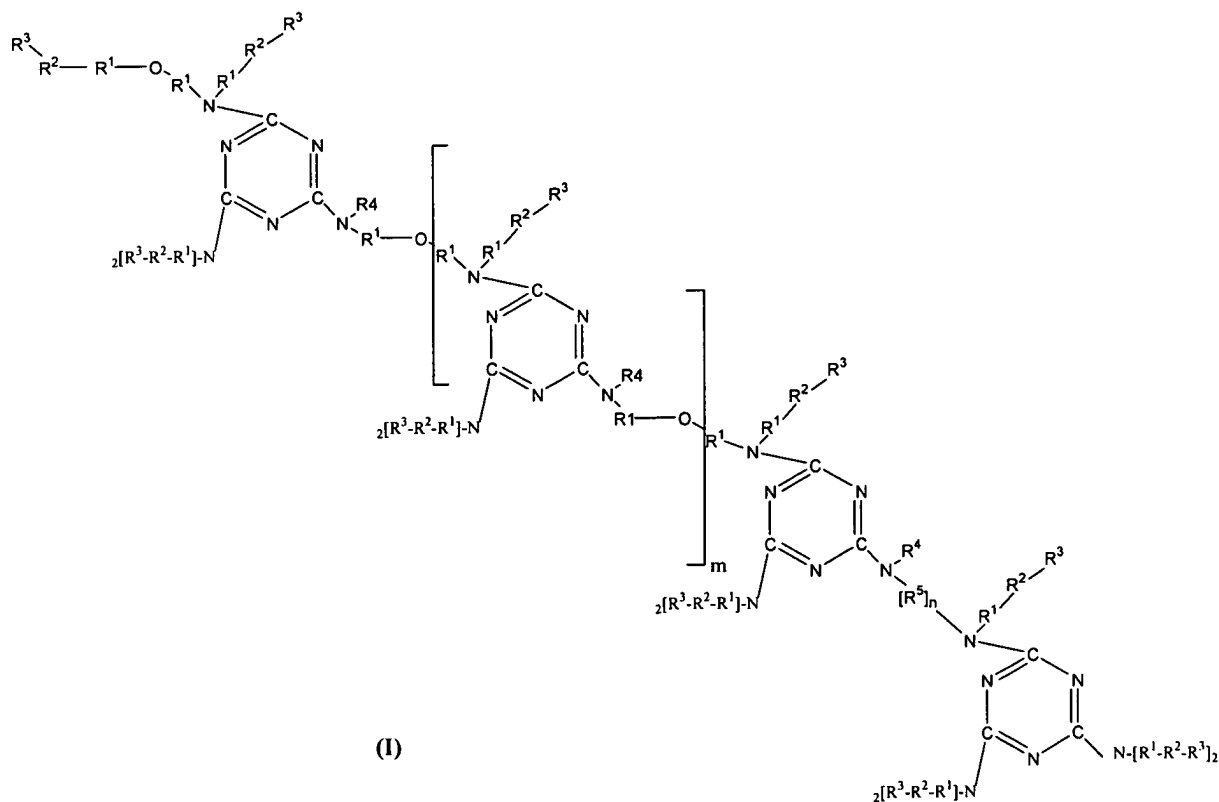
Claim 19. (Previously presented) The method of claim 14, wherein the at least one reactant compound comprises a fatty acid.

Claim 20. (Currently amended) The method of claim 19 [[14]], wherein the ~~at least one reactant compound comprises a compound which~~ fatty acid is selected from the group consisting of

lauric acid, myristic acid, palmitic acid, stearic acid, arachidic acid, palmitoleic acid, oleic acid, ricinoleic acid, linoleic acid, arachidonic acid, and combinations thereof.

Claim 21. (Currently amended) The method of claim 14, wherein the at least one ~~base~~ melamine base resin is modified or unmodified and is selected from the group consisting of a melamine resin, a melamine-formaldehyde resin, a melamine-urea-formaldehyde resin, ~~a urea-formaldehyde resin~~ methylated melamine formaldehyde, and combinations thereof.

Claim 22. (Currently amended) A surface having a coating, wherein the coating comprises a melamine ring-containing co-polymer having the structure of formula (I):



wherein m is an integer of 1 to 100;

R<sup>1</sup> is independently selected from the group consisting of an alkyl group having one to twenty carbon atoms;

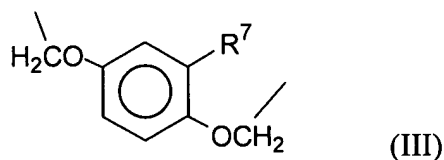


$R^2$  is independently selected from the group consisting of an oxygen atom and a sulfur atom;

$R^3$  is independently selected from the group consisting of an alkyl group, an allyl group, an alkynyl group, an aryl group, and a phenyl group, having one to seventy carbon atoms;

$R^4$  is independently selected from the group consisting of  $-C_pH_{2p}OH$ ;  $-C_pH_{2p-1}OH$ ;  $-C_pH_{2p-2}OH$ , wherein  $p$  is an integer of one to seven; a hydrogen atom; a carboxyl group, an alkyl group; an allyl group; and an alkynyl group;

$R^5$  is independently selected from the group consisting of an alkyl group, an alkyl group containing at least one ether linkage, and the group represented by the formula (III):



wherein  $R^7$  is independently a  $C_{10}$ - $C_{40}$  branched or unbranched, substituted or unsubstituted alkyl, allyl, or alkynyl group, and;

$n$  is an integer of one to thirty.

Claim 23. (Previously presented) A melamine ring containing co-polymer that is a reaction product of a cashew nut shell liquid and at least one melamine-formaldehyde resin wherein the cashew nutshell liquid comprises cardanol and cardol, and wherein the cardanol is present in an amount ranging from about 80% to about 100% by weight of the cashew nut shell liquid and the cardol is present in an amount ranging from about 1% to about 20% by weight of the cashew nut shell liquid.

Claim 24. (Previously presented) The melamine ring containing co-polymer of claim 23, wherein the reaction is carried out in the presence of a proton-donating catalyst.

Claim 25. (Previously presented) The melamine ring containing co-polymer of claim 23, wherein the at least one melamine resin comprises a methylated melamine formaldehyde resin.

Claim 26. (Previously presented) The method of claim 23, wherein the cashew nutshell liquid is in the form of a cashew nut shell liquid distillate.

Claim 27. (Currently amended) The copolymer of claim 1, wherein the at least one base melamine base resin is a methylated[[-]]melamine formaldehyde resin.

Claim 28. (Previously presented) The melamine ring containing co-polymer of claim 1, wherein the cashew nutshell liquid comprises cardanol and cardol, and wherein the cardanol is present in an amount ranging from about 80% to about 100% by weight of the cashew nut shell liquid and the cardol is present in an amount ranging from about 1% to about 20% by weight of the cashew nut shell liquid.

Claim 29. (Previously presented) The melamine ring containing co-polymer of Claim 28 that is a reaction product of a cashew nut shell liquid and at least one melamine-formaldehyde resin, wherein the cashew nutshell liquid comprises cardanol and cardol, and wherein the cardanol is present in an amount ranging from about 96% to about 98% by weight of the cashew nut shell liquid and the cardol is present in an amount ranging from about 2% to about 4% by weight of the cashew nut shell liquid.

Claim 30. (Currently amended) The co-polymer of claim 23, A melamine ring containing co-polymer that is a reaction product of a cashew nut shell liquid and at least one melamine-formaldehyde resin, wherein the cashew nutshell liquid comprises cardanol and cardol, and wherein the cardanol is present in an amount ranging from about 96% to about 98% by weight of the cashew nut shell liquid and the cardol is present in an amount ranging from about 2% to about 4% by weight of the cashew nut shell liquid.

Claim 31. (Canceled)

Claim 32. (New) A compound formed by a process comprising the step of reacting a melamine base resin and cashew nut shell liquid.

Claim 33. (New) The compound of claim 32, wherein the reacting step further comprises the steps of:

- (a) mixing a melamine base resin and cashew nut shell liquid;
- (b) heating the mixture from about 140° C to about 170° C; and
- (c) reacting the mixture for about 4 to about 6 hours.

Claim 34. (New) The compound of claim 33, wherein the process yields at least about 87% of the compound.

Claim 35. (New) The compound of claim 32, wherein the reacting step further comprises the addition of a catalyst selected from the group consisting of a sulfo radical containing catalyst, methanesulfonic acid, phosphoric acid, nitric acid, oxalic acid, maleic acid, hexamic acid, phthalic acid, acrylic acid, para-toluene sulfonic acid, dinonyl naphthalene sulfonic acid, magnesium bromide, zinc nitrate, aluminum nitrate, magnesium nitrate, and combinations thereof.

Claim 36. (New) The compound of claim 32, wherein the melamine base resin is a modified or unmodified melamine resin, melamine-formaldehyde resin, melamine-urea-formaldehyde resin, or combinations thereof.

Claim 37. (New) The compound of claim 32, wherein the melamine base resin is a methylated melamine-formaldehyde resin.

Claim 38. (New) The compound of claim 32, wherein the cashew nut shell liquid consists essentially of cardanol and cardol.

Claim 39. (New) The compound of claim 38, wherein the cardol concentration is about 15% or less.

Claim 40. (New) A compound formed by the reaction of a methylated melamine-formaldehyde resin and cashew nut shell liquid having cardanol and cardol, wherein the cardol concentration is about 15% or less.

Claim 41. (New) A melamine ring containing co-polymer having the following properties:

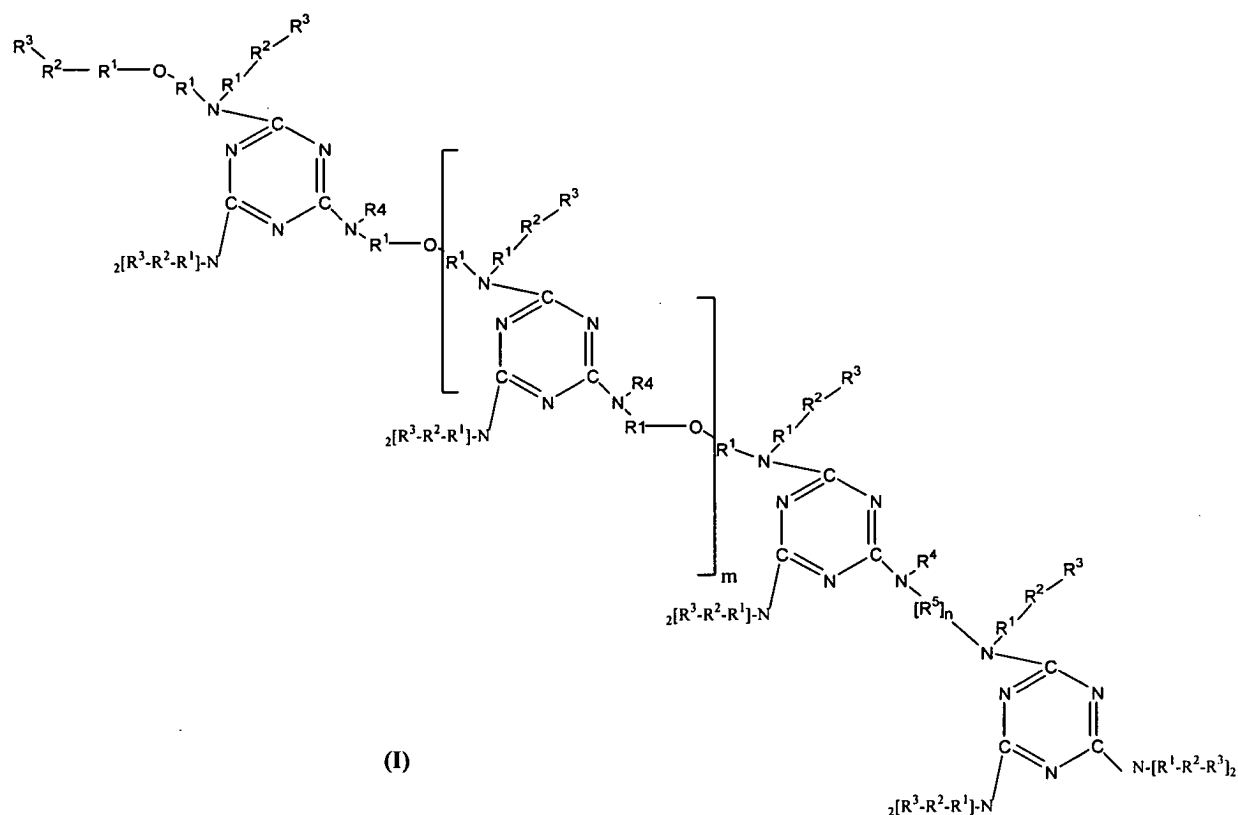
a dynamic viscosity of about  $0.5 \times 10^4$  P to about  $3 \times 10^4$  P;

a weight of about 8 to about 9 pounds per gallon; and

a Garde-Holt test value no greater than 15.

Claim 42. (New) The melamine ring containing co-polymer of claim 41, wherein the co-polymer has a viscosity that continues to increase upon heating.

Claim 43. (New). A method of preparing a melamine ring-containing co-polymer having the formula (I):



wherein m is an integer from 1 to 100;

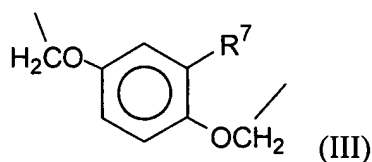
R<sup>1</sup> is independently selected from the group consisting of an alkyl group having one to twenty carbon atoms;

R<sup>2</sup> is independently selected from the group consisting of an oxygen atom and a sulfur atom;

R<sup>3</sup> is independently selected from the group consisting of an alkyl group, an allyl group, an alkynyl group, an aryl group, and a phenyl group, having one to seventy carbon atoms;

R<sup>4</sup> is independently selected from the group consisting of -C<sub>p</sub>H<sub>2p</sub>OH; -C<sub>p</sub>H<sub>2p-1</sub>OH; -C<sub>p</sub>H<sub>2p-2</sub>OH, wherein p is an integer of one to seven; a hydrogen atom; a carboxyl group, an alkyl group; an allyl group; and an alkynyl group;

R<sup>5</sup> is independently selected from the group consisting of an alkyl group, an alkyl group containing at least one ether linkage, and the group represented by the formula (III):



wherein  $R^7$  is independently a  $C_{10}$ - $C_{40}$  branched or unbranched, substituted or unsubstituted alkyl, allyl, or alkynyl group, and;

$n$  is an integer from one to thirty; comprising the steps of

- (a) mixing a melamine base resin and cashew nut shell liquid;
- (b) heating the mixture from about 140° C to about 170° C; and
- (c) reacting the mixture for about 4 to about 6 hours.

Claim 44. (New) The method of claim 43, wherein the mixing step further comprises the addition of a catalyst selected from the group consisting of a sulfo radical containing catalyst, methanesulfonic acid, phosphoric acid, nitric acid, oxalic acid, maleic acid, hexamic acid, phthalic acid, acrylic acid, para-toluene sulfonic acid, dinonyl naphthalene sulfonic acid, magnesium bromide, zinc nitrate, aluminum nitrate, magnesium nitrate, and combinations thereof.